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ABSTRACT

Theories of human migration have been invoked to account for the difference between large-scale spread of languages and linguistic elements, as opposed to small-scale local, residual distributions. The field of dialectology understands linguistic elements as distributed across human populations, with migration as only one possible mechanism of such distributions. Anthropological dialectology, grounded in the material circumstances of human populations, can offer an alternative to migration theories. The inherent variability of languages yields tokens that speakers can deploy to make claims on resources, and differentiate localist from distributed sociolinguistic stances toward this variability. People with secure primary claims on essential resources are more likely to favor localist stances, while people who lack adequate primary claims and draw instead on a diverse range of secondary or indirect claims are more likely to favor distributed stances. Distributed stances encourage the spread of sociolinguistic variables, while localist stances inhibit spread. The stances and their effects on distribution of language variation are illustrated by a study of two dialects of the Tohono O Odham (Papago) language. Contains 31 references. (Author)

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INDIANA UNIVERSITY

The David Skomp
Distinguished Lectures
in Anthropology

LANGUAGES ON THE LAND: TOWARD AN ANTHROPOLOGICAL DIALECTOLOGY

Jane H. Hill
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Text of a lecture
delivered March 21, 1996

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DEPARTMENT OF ANTHROPOLOGY

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LANGUAGES ON THE LAND: TOWARD AN ANTHROPOLOGICAL DIALECTOLOGY

Jane H. Hill, University of Arizona

ABSTRACT: Theories of human migration have often been invoked to account for the difference between large-scale spread of languages and linguistic elements, as opposed to small-scale local and "residual" distributions. The field of dialectology understands linguistic elements as distributed across human populations, with migration as only one possible mechanism of such distributions. An anthropological dialectology, grounded in the material circumstances of human populations, can offer an alternative to migration theories. The inherent variability of languages yields tokens that speakers can deploy to make claims on resources, and differentiate localist from distributed sociolinguistic stances toward this variability. People with secure primary claims on essential resources are more likely to favor localist stances, while people who lack adequate primary claims and draw instead on a diverse range of secondary or indirect claims are more likely to favor distributed stances. Distributed stances encourage the spread of sociolinguistic variables, while localist stances inhibit spread. The stances and their effects on the distribution of language variation are illustrated by a study of two dialects of the Tohono O'odham (Papago) language

0. INTRODUCTION

I've been interested in the relationship between the distribution of language variation in geographical and social space, and the diverse forms of human adaptation, since about 1960. The very first term paper I ever wrote in graduate school was on this question (I got an A-). A Skomp Lecture to the Department of Anthropology at Indiana University struck me as a fine opportunity to return to it. First, by tak-

ing up a topic with an ecological dimension here, I can honor the memory of Robert M. Netting among colleagues with whom he spent many happy months toward the unexpectedly early end of his life. Second, I can reassert the power of a unified vision of anthropology here in a department that continues, with my own, to support that vision.

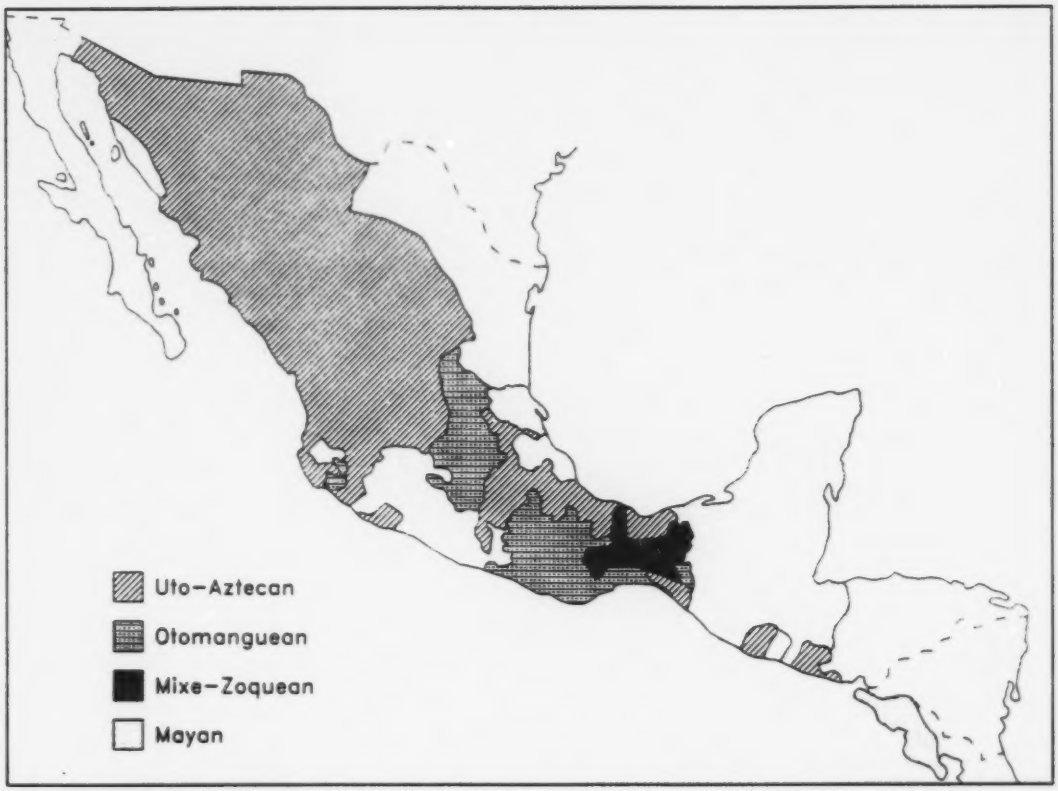
I. LOCALIST AND DISTRIBUTED STANCES TOWARD LANGUAGE VARIATION

I made my last major foray into these questions in a paper written almost 20 years ago (Hill 1979). There, I attacked the then-dominant notion of the "dialect tribe" as the organizing unit for linguistic diversity in populations of foragers, arguing that large-scale areal systems were at least as important in ancient human adaptations. However, big areal systems are only one of the major dimensions of the organization of linguistic diversity. When we examine linguistic maps of the Americas (and, indeed, of the world), we are struck by a pattern of alternation that appears at all levels, between clusters of local diversity contrasting with zones of widespread homogeneity. This patterning occurs at every level of the historical-linguistic hierarchy. At the level of linguistic stocks themselves, we can contrast the very local distribution of the Mixe-Zoquean languages in Mesoamerica with the relatively far-flung distribution of the Otomanguean, Mayan, and Uto-Aztecan families, shown on Map 1.

Within subfamilies, we can see contrasts like the cluster of small and relatively differentiated Numic languages around the southern and eastern flanks of the Sierra Nevada, compared to the large geographical scale of the Numic languages in the Great Basin, shown on Map 2.

At the level of dialect differentiation in individual languages, an excellent example is the local differentiation of American English among populations of urban working-class whites, compared to the nation-wide homogeneity of African-American Vernacular English (Labov 1972b).

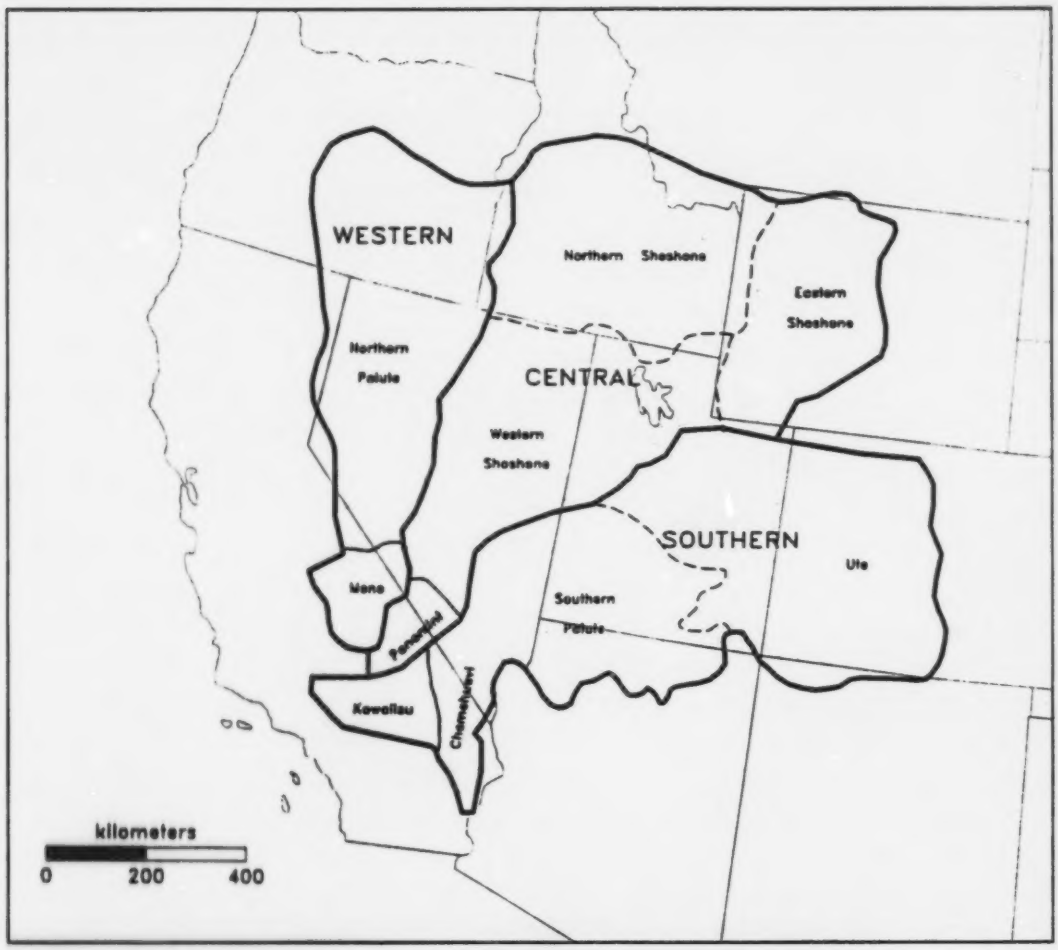
To characterize these contrasting patterns, I borrow from Johanna Nichols' (1992) discussion of the global patterning of language differ-



MAP 1. Major Language Families of Mesoamerica (After Miggliaza and Campbell 1988)

entiation the terms "residual zones" and "spread zones". Residual zones, which Nichols exemplifies by the Caucasus Mountains, exhibit great linguistic diversity, great antiquity of this diversity, stability of location of linguistic communities, and lack wide-spread lingue franche. In contrast, spread zones, such as Nichols' case of the Eurasian steppe, exhibit low linguistic diversity, with relatively recent origin of this diversity, geographical mobility of linguistic communities, and lingue franche used over large areas.

These patterns tempt the prehistorian to think about "spreads" and "migrations" of human communities. Migration theorists will argue that speakers of Mixe-Zoquean stayed put, speakers of Otomanguean,Mayan,



MAP 2. The Numic Languages (From Madsen and Rhode 1994)

and Uto-Aztecan moved. Speakers of Mono, Panamint, and Kawaiisu stayed put, speakers of Northern Paiute, Shoshone, and Southern Paiute moved. Speakers of Philadelphia Italian-American Vernacular English stayed put, speakers of African American Vernacular English moved. I do not have time today to talk about the Old World, but none of you will have any difficulty coming up with comparable examples.

A problem with migration theory is that it requires that people have reasons to move: "push factors," "pull factors", and technologi-

cal innovation that permits migrants to expand at the expense of their neighbors. There are two difficulties here. One is that every migration requires a singular set of explanations. The second is that, for many proposed migrations, the archaeological record doesn't yield unequivocal evidence in support of these explanations. So prehistorians are laboring mightily to resist the temptation to use migration in every likely case, and to come up with better models for differentiation *in situ*. A genuinely anthropological dialectology can help them, and I want to propose today what such an approach might look like.

Human beings do, in fact, migrate sometimes; history provides many examples. But, as Nichols (1992) has pointed out, this cannot be the reason for all of the linguistic spread zones in the world, since this would require that we postulate repeated cycles of singular historical events which we know did not occur—or, at least, they did not always occur at the right times and places. Dialectology, the discipline which attends most closely to the geographical distribution of language variation, hardly invokes migrations at all. Instead, dialectologists tend to see human communities as stable ground across which advancing and retreating waves of linguistic innovation are in motion. Today I want to discuss a very small-scale example of this type, using data from two dialect communities of the Tohono O'odham language. I want to generalize from this case to argue that the movement—or lack thereof—of linguistic innovation across the relatively stable ground of human populations is due to the relative dominance among speakers of one of two major strategies or stances toward the variation available in their sociolinguistic universe. In a "localist" strategy, the speaker decides, "I will select a particular kind of person as my model, and I will try to sound as much like that kind of person as I can." In a "distributed" strategy, the speaker decides, "I am not sure what kind of person I want to sound like. I will try to sound like a variety of different kinds of people." The speech of any single person, and the patterns of variation in any community, will always be the product of a combination of these two strategies, but I will focus today on cases where one or the other is clearly dominant, with a conspicuous effect on the local distribution of variation.

What is "anthropological" about this proposal is that I associate localist and distributed strategies each with a different set of ecological, sociocultural, and biological constraints. Ecological constraints come from environment and technology. By "environment," I mean the cultural construal of a system of resources, accessible through local technologies, on which the well- being of a community depends. There are, of course, certain minimal constraints on how resources may be construed—and indeed, our case today, where the possibility of death by thirst was by no means remote for the Southwestern Tohono O'odham—exhibits ultimate necessities in a particularly straightforward way. However, by "environment" I mean a cultural, not a natural phenomenon. In the localist case, speakers behave as if they hold an opinion that we might express as, "I have a rightful and primary claim on valuable and dependable local resources that are necessary to my well-being." In the distributed case, speakers seem to have a different thought: "I have no—or insufficient—rightful and primary claim on valuable and dependable local resources adequate to sustain my well-being. However, I can add to my limited primary claims secondary claims on a sufficient range of a distributed inventory of resources to sustain my well-being".

The ways in which language variation is distributed across human populations must be linked to these construals of environmental rights and opportunities by a local culture of language, including those interested stances toward language structure and use usually called language ideology (Woolard and Schieffelin 1994). A culture of language can define the various options in systems of language variation as relevant or irrelevant to critical distinctions, including that of "insider" vs. "outsider" to a community with a primary claim on resources. It can even define language variation writ large as quite irrelevant to such claims. However, this is unlikely: since the way people talk is such an essential and transparent dimension of identity, most "cultures of language" permit speakers to imagine, "One way I can license my claim on resources is through speaking in a certain way."

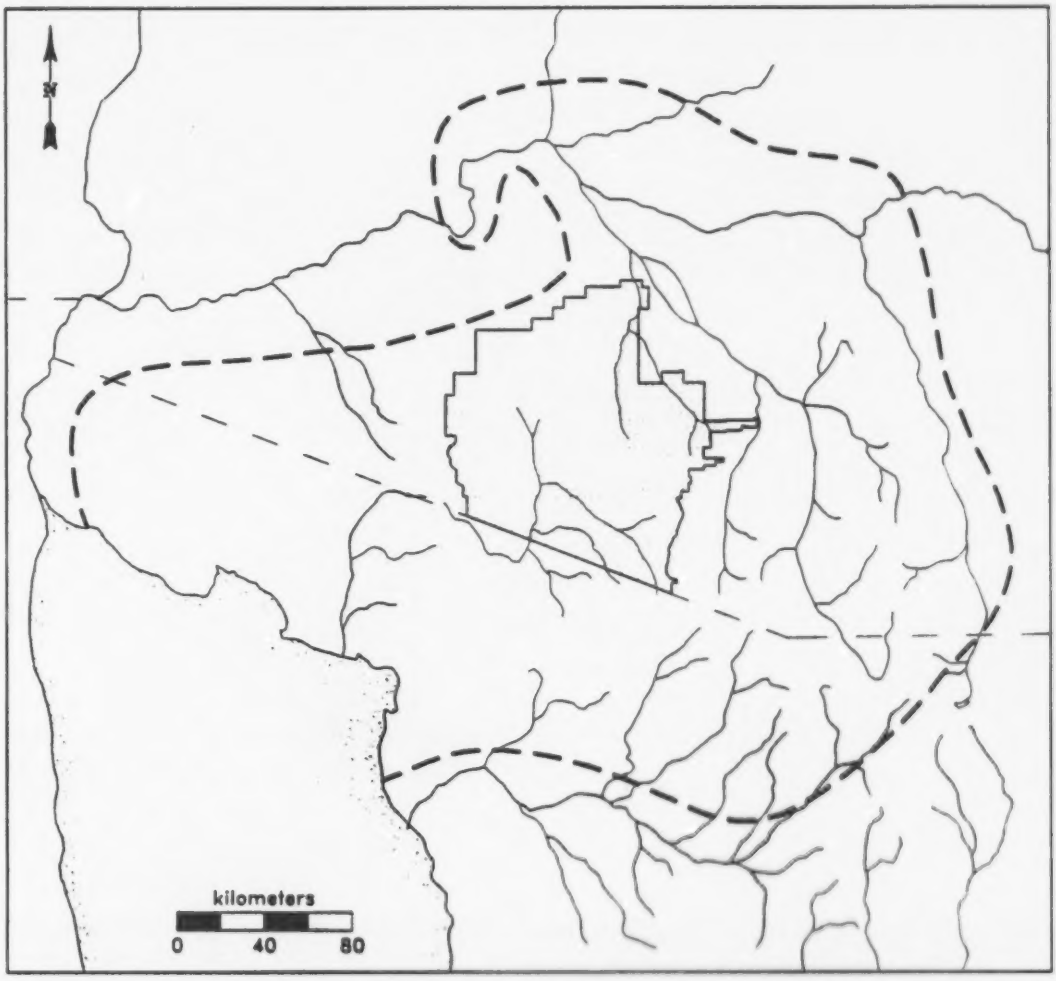
Localist strategies especially are constrained by the biological nature of language acquisition, which operates within a critical period of human development. Infants begin to respond to the distinctive

phonological features of their native language as early as three months of age (Kuhl 1991). Quantitative analysis of variation can distinguish speakers who joined a community after about the age of eight from those who joined it before that age, and in one notable case, the complex lexical patterning of the raising of [æ] in King of Prussia, Pennsylvania, speakers whose parents came from the community were different from speakers who were raised in the community, but by non-native parents (Payne 1980). Speakers who acquire languages after early adolescence usually have foreign accents that are detectable even to the non-linguist. So a successful localist strategy must be established early in life, and must orient toward usages among the speaker's primary relatives and childhood playmates. Distributed strategies permit greater flexibility both across the life course and across diverse reference groups, but their expression is likely to be both less systematically dense and less reliable than localist usages.

Localist and distributed strategies, as stances toward innovation, are likely to be associated with particular types of social networks. Recent work of James and Leslie Milroy (1985) has shown that relatively dense and closed social networks, within which members are bound to one another by multiplex "strong ties", constitute social zones in which sociolinguistic variation will be "focussed": members of the network will be relatively homogeneous in their speech, and are unlikely either to innovate or to accept innovation. In contrast, innovations spread rapidly where relatively open network structures favor the presence of many "weak ties" among members of different networks. The Milroys argue that the relative dynamism of urban in contrast to rural speech in western languages develops because the urban context favors the development of weak ties along which innovations can spread into new networks.

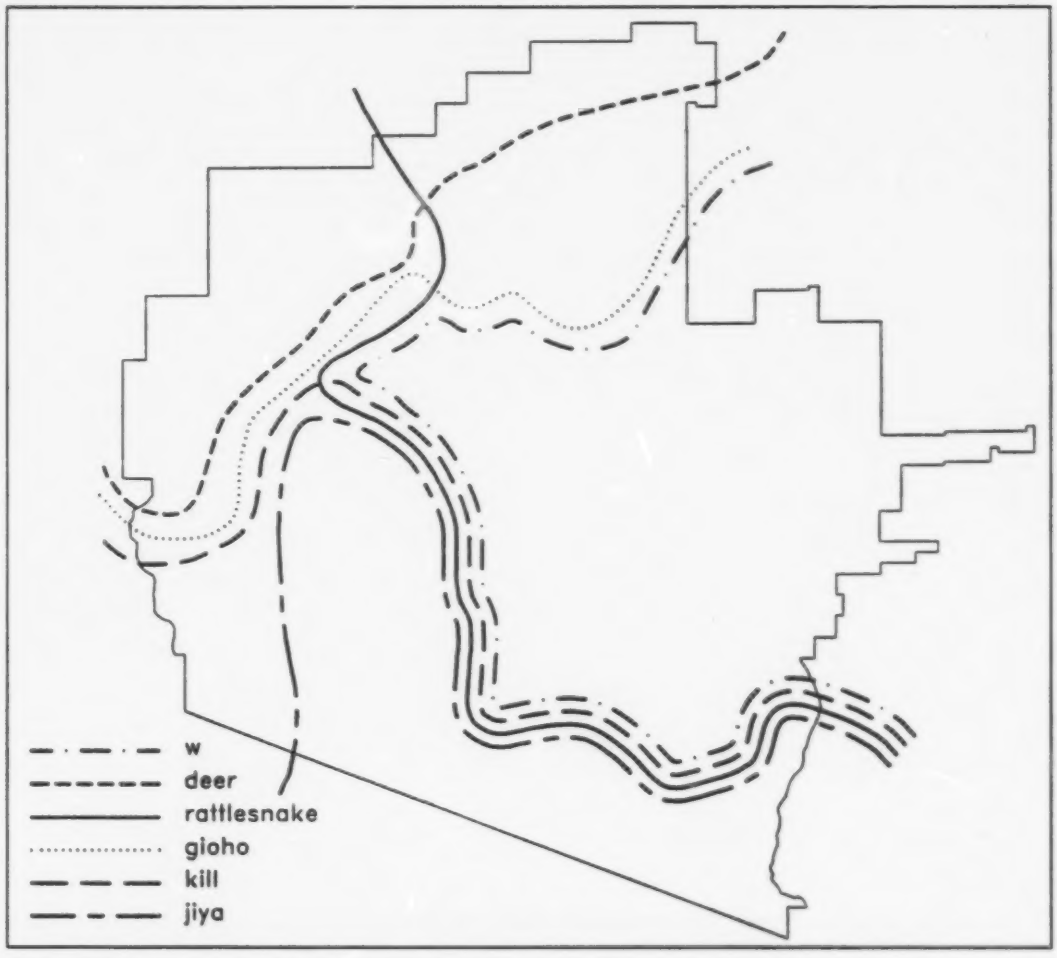
II. TWO TOHONO O'ODHAM DIALECT AREAS

Two dialect communities within the Tohono O'odham language contrast sharply in dominant sociolinguistic strategy, and provide a case that illustrates the general outline presented above. Formerly



MAP 3. Area Inhabited Historically by Speakers of Upper Piman (shaded area is contemporary Tohono O'odham Reservation)

known as "Papago", Tohono O'odham is a member of the Upper Piman dialect system within the Tepiman family of the Uto-Aztecan stock. Upper Piman dialects[1] were spoken aboriginally roughly from the Altar River valley in the present-day Mexican state of Sonora to the Gila River in Arizona, and from the San Pedro River in South-Eastern Arizona probably as far west as the Colorado, as shown in Map 3.



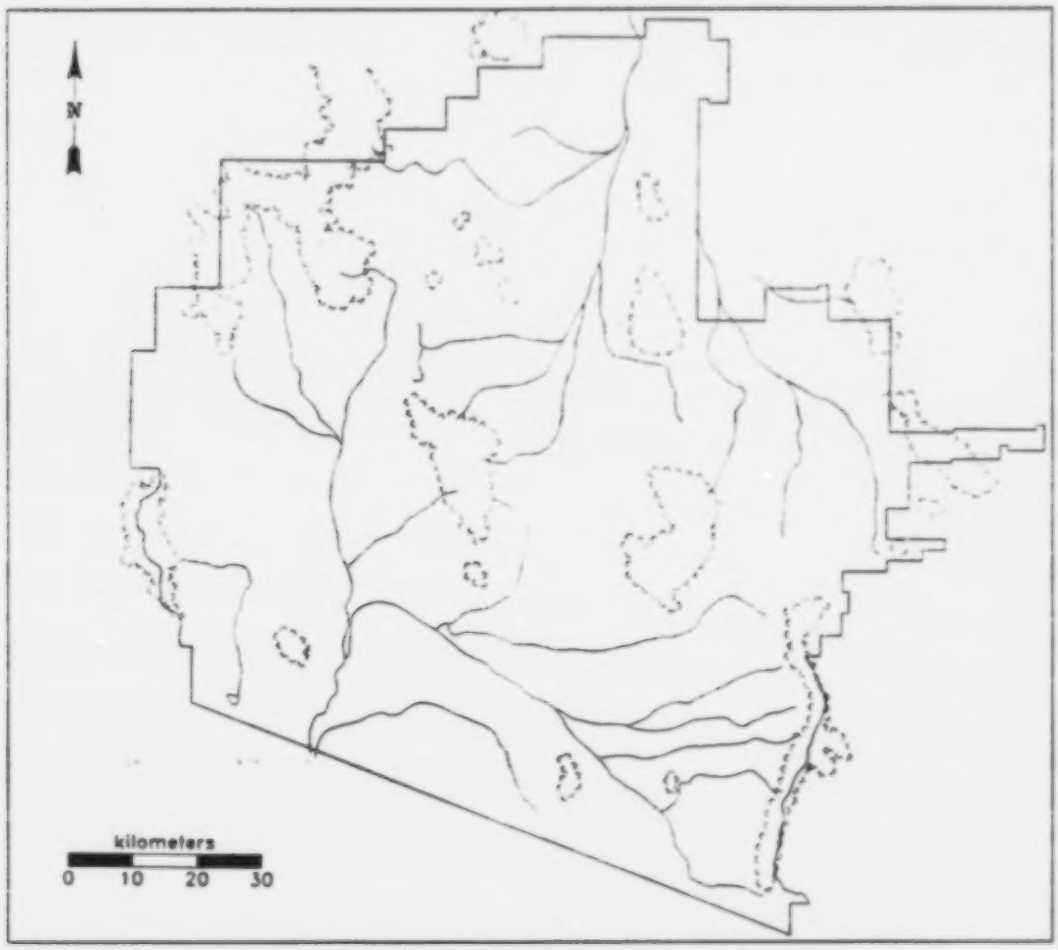
MAP 4. Some Major Isoglosses Dividing Dialects of Tohono O'odham

Among the surviving dialects the distinction often made between "Pima" (*Akimel O'odham* or "River People") and "Papago" (*Tohonno O'odham* or "Desert People") is a political, not an historical-dialectological, division.

Between 1986 and 1989 Ofelia Zepeda and I, assisted by Molly DuFort and Mary Bernice Belin, conducted a survey of 91 speakers of Tohono O'odham, representing almost all major villages on the main reservation.[3] All but four speakers were over 55 years of age (the age at

which a person is eligible for services from the tribe's Gerontology Program, through which we found many speakers in the survey). Our dialectological conclusions here are based on this survey. On the largest scale we distinguish a "peripheral" regional dialect system from a "central" system. The peripheral system subdivides into at least four major varieties; the center exhibits several less differentiated subdialects. Several of the major isoglosses that define this system are shown in Map 4. The isogloss "w" distinguishes speakers in the central region, who usually pronounce the phoneme /w/ as [w] , from peripheral dialect speakers who pronounce it as [v] in many environments. The isogloss "deer" distinguishes the northwestern pronunciation, [hwai], from the pronunciation [huavI] elsewhere. "Rattlesnake" distinguishes the peripheral-dialect pronuncation [ko'oi] from central [ko'ovI]. [gioho] 'burden basket' is a pronunciation found in the northwest, with [giho] elsewhere. The word for "kill" is [mua] in the north. [mɨa] in the south. Finally, [jiya' is the southern pronunciation for "one person arrives", elsewhere [jivia] (in the extreme west) or [jiwa] (in the central dialect)

Joseph, Spicer, and Chesky (1949), who recognized six distinctive dialects,[3] thought that each came historically from the dispersal of patrilines associated with a single "defense village" or closely-associated cluster of defense villages established during the Apache wars (roughly 1700- 1870). Examination of local topography and drainage systems suggests another possibility: these dialect areas, and their major subdivisions, are strongly associated with drainage systems that provide simultaneous access to two types of water resources: permanent tanks or springs which provided water during the relatively dry season from October to June, usually located in mountains, and seasonally-flowing washes which provided lowland sites for cultivation in moist silts during the summer rainy season from July to September. The major drainage systems on the reservation are shown on Map 5. Note that the area that includes the "peripheral" dialects includes the large drainage system in the Southeast (the Vamori is the main wash) and the San Simon system in the west. The central dialect system includes the large Santa Rosa drainage system in the north-central area and a secondary system that includes the Sil Naggia wash in the eastern region.



MAP 5. Major Drainage Systems on the Tohono O'odham Reservation

Access to surface water was emphatically the major resource constraint affecting Tohono O'odham survival until quite recent times. Widespread development of permanent stock tanks and deep wells did not occur until the 1930's. Until that decade most O'odham (including many of the people in our survey) moved at least twice yearly, from "winter villages" located in the hills near springs and rock tanks that would usually last through the dry season, to "summer villages" located along seasonally-flowing washes where crops of the fast-growing local culti-

gens of corn and beans could be planted in damp silts left by retreating floods from intense summer thunderstorms (Hackenberg 1983).

The ethnographic literature on the Tohono O'odham (Underhill 1939; Joseph, Spicer, and Chesky 1949), as well as our interviews with speakers, confirm the presence of a "culture of language" within which regional variation was highly salient. Speakers know at least six names for dialects, which are different from the names for regions, districts, and villages. Speakers are highly aware of lexical and phonological shibboleths, and report being teased about their speech when they went visiting, went away to school, or married across dialect boundaries (the last does not seem to have been very common). Speakers who left their natal dialect areas often report trying to sound like their new neighbors in order to avoid this teasing. Regional dialect variation is a problem for bilingual education, since parents, teachers, and children often concur that speakers of other dialects, or curricular materials prepared in other dialects, are simply "wrong", not just different. Given the excellent match between dialect systems and drainage systems, it is likely that this intense awareness of dialect differences constituted one component of a complex set of filters that matched people to critical resources, especially to access to surface water.[4] In extremis, the Tohono O'odham did have an escape valve: they could become marginal dependents of communities of the "river people", both Pimans and speakers of Maricopa, a Yuman language, who lived along permanent streams such as the Santa Cruz or the Gila. Even today, many O'odham leave their natal communities for seasonal farm labor, which sometimes turns into long periods of off-reservation residence.

As might be guessed from the culture of language described above, speakers of Tohono O'odham generally lean toward the localist end of the continuum of sociolinguistic stances. Although Hackenberg (1983) characterizes overall O'odham subsistence strategies as diffuse and opportunistic, in most cases their patterns of language variation are relatively localist. People from the extreme Southeast are especially striking in their devotion to this stance. Eleven speakers in the dialect survey sample come from (that is, claim to be *si ki:kam* in, cf. Hill and Zepeda 1993) five villages in the extreme Southeastern corner of the

Tohono O'odham reservation: Ce'ul Ṣa'i (Fresnal Canyon), Cu:lig, South Komalig, S-He:pid Oidag (Cold Fields), and San Miguel. They are speakers of the larger Kokolo:di dialect, but exhibit some traits distinctive to the southeast. In contrast, speakers of the Southwestern dialect, called Huhuwosh by Joseph, Spicer, and Chesky (1949) and Saxton, Saxton, and Enos (1983), manifest such an extreme distributed strategy that the dialect is best characterized not by identifying the local innovations, but by enumerating combinations of features that probably originated elsewhere, but which do not cluster together in other dialects. However, the Southwest does not retain an unusually large number of archaisms, as we might expect on a linguistic periphery. On the contrary, it is a sort of dustbin of relatively recent innovation. From this much less densely populated area the dialect-survey data include only six speakers, who claim origin in two villages, Pi Oikk and Ali Jek (Menager's Dam), the latter located at the tiny lake in the extreme southwest corner of Map 5.

These two groups of speakers, which are both part of the "peripheral" dialect system, contrast sharply along several major sociolinguistic dimensions. On each of these, the Southeastern Kokolo:di speakers are more "localist", while Southwestern speakers are more "distributed". These are willingness to accept innovation, degree of sociolinguistic focus or diffusion, consistency of usage by individual speakers, and willingness to accomodate to other dialects. I now take these dimensions up in turn, providing examples for each one.

A. Southeastern speakers resist innovation. Southeastern speakers have innovated independently on only two major variables, and are much less likely to accept innovations originating in other dialect areas than are Southwestern speakers. Southeastern speech preserves high frequencies of realization of a number of archaisms at loci where every other area has innovated. By contrast, Southwestern speakers have adopted almost 20 major innovations that must have come from outside their area in fairly recent times.

One example of the tendency of Southwestern speakers to be more likely to accept innovation appears in a series of lexical items where one vowel in a word assimilates to the other.

1 a. nonha "eggs" > nonho

SE: No innovation

SW: S50, S75 show innovation

1 b. weho "it's true" > woho (a stereotype)

SE: Only S48 shows innovation

SW: S50, S74, S75 show innovation

In a series of variable pronunciations of Spanish loan words, innovation moves away from the Spanish pronunciation in the direction of assimilation of adjacent consonants.

2 a. wa:ldi "bucket" > wa:ndi, wa:nni, wa:lli

SE: no innovation

SW: S50, 67, 55 have wa:lli
74 has wa:ndi
28 has wa:nni
66 preserves wa:ldi

2 b. wandi:ho/a "bread tray" > wanni:ho/a, waññi:ho/a

SE: Only S48 shows innovation

SW: All speakers except S74 show innovation. Furthermore, two speakers palatalize /n/ to /ñ/.

In the pronunciation of Spanish loan words, an innovation moves stress to the initial syllable, canonical for Tohono O'odham, while conservative forms retain Spanish stress. This is a stereotyped variable.

3. milgá:n "White person" > mílgan

SE: no innovation

SW: S66 shows mílgan

Several cases involve lexical variables. A good example is a shift of meaning of the word *ga:t* "bow" to mean "rifle", replacing conservative *gawos* (Saxton, Saxton, and Enos 1983 suggest that this is a loan word from Spanish *arquebús*).

4. *gawos* > ga:t "rifle"

SE: no innovation

SW: S50, 74, 67 show *ga:t*

An extremely important innovation involves a shift in the permissible membership of vowel clusters. The innovation requires that at least one member of a vowel cluster exhibit tongue-root advancement.[8] Thus clusters /eo/, /ea/, and /oa/ become /io/, /ia/, and /ua/ respectively; the first vowel in the cluster must have "advanced tongue root". This innovation has gone to completion in the central dialect, with nearly all speakers exhibiting percentages close to 100%. The isophone of the 90% level is one of the best markers of the boundary of the central dialect. Given this near-categoriality in the central dialect, we can assume that the innovation originated there, and is diffusing into the periphery. In dialects where the innovation is not yet well advanced, it exhibits so-called "lexical diffusion": some lexical items are more likely to be affected by it than others. Thus we must look at speaker behavior in quantitative rather than absolute terms. Below are the percentages for tongue-root advancement of *e, *o to i, u respectively in vowel clusters, for the two areas:

5.		%i	%u			%i	%u
SE:	S90	0	0	SW:	S50	13	21
	S81	10	12		S74	44	60
	S58	18	0		S28	11	16
	S69	19	53		S66	75	63
	S48	65	92		S67	59	53
	S83	20	95		S75	11	7
	S15	5	17				
	S59	20	0				
	S43	6	30				
	S23	39	20				
	S61	5	28				

Here, we see that in the group of speakers from the Southeast, only S48 is well along toward categoriality for /i/. Two speakers, S48 and S83, exhibit near-categorial /u/. (S48 has lived almost all his adult life

in the central-dialect village of Big Fields, although his village of origin is in the southeast). Several speakers exhibit values of 0, or percentages under 10% for these innovations. In contrast, in the Southwest no speakers exhibit zero values, and three of the six speakers are well advanced for both /i/ and /u/.

A second example of a phonological innovation involves one dimension of a larger process, the elision of unstressed vowels. In the Southeast and in the Kokolo:di dialect more generally, this process has been inhibited where /i/ follows /l/; /i/ is variably retained, and this is a conspicuous feature of this dialect (the Spanish and English name for the O'odham sacred mountain, Baboquivari, reflects this feature: Southeastern speakers say /wáwɔ́ gíwulik/, while speakers of other dialects say /wáwɔ́ gíwulk/). Elsewhere (except in the Southwest), unstressed /i/ is categorically lost after all coronal consonants including /l/. The percentages of retention of /i/ after /l/ for is as follows:

6.		%li			%li
SE:	S90	27	SW:	S50	2
	S81	59		S74	2
	S58	75		S28	11
	S69	25		S66	2
	S48	13		S67	14
	S83	56		S75	39
	S15	43			
	S59	62			
	S43	80			
	S23	69			
	S61	56			

Here, S48 again is the outlier in the Southeastern group, retaining only 13% of /i/ after /l/. In contrast, only three of the Southwestern speakers exhibit this feature, and all at a relatively low frequency compared to most

of the Southeasterners. Three others exhibit the otherwise universal innovative pronunciation (retention values at 2% are found even in the Central and Northern varieties, although 0% retention is more common).

B. Southeastern speakers are more "focussed". They constitute a strikingly homogeneous group. For 77 sociolinguistic variables that appear to display patterning in space (as opposed to being associated with gender, for instance), Southeastern speakers exhibit greater variability than speakers in the Southwest on only ten variables. In contrast, Southwestern speakers are heterogeneous, exhibiting greater internal variability on 37 variables. (Among the remaining 30 variables, either they are not relevant in the south, or I have insufficient data, or I judge the two groups to be similarly heterogeneous or homogeneous). Furthermore, Southeastern speakers attend more carefully to boundaries, frequently mentioning ways in which their speech differs from that of the Central-dialect speakers who are their neighbors (the Southeast is a dialectologically "mixed" area, where peripheral-dialect Kokolo:di and central-dialect Totoguañ speakers live side-by-side in the same villages). Speakers in the Southwest are certainly aware of dialect, but with one exception (S67, who has the most education of any Southwestern speaker), they do not talk much about it.

The higher sociolinguistic focus of Southeasterners can be illustrated by cases where Tohono O'odham speakers exhibit a high level of "sociolinguistic awareness" (Silverstein 1979) of the association of particular pronunciations of individual lexical items with particulargeographic areas. On such high-awareness variables the Southeast invariably exhibits a very high level of focus. For instance, there are three major pronunciations of the word for "Creosote Bush" (Larrea tridentata), shown in 7.

7. *ṣegai* (Central and North)/*ṣegoi* (General South)/*ṣegio* (Pisinmo'o)

SE: *ṣegoi* for 10 speakers
(S83 has *ṣegio*, the Pisinmo'o pronunciation)

SW: *ṣegoi* for 5 speakers
(S66 has *ṣegai*, the central-dialect pronunciation)

The word meaning "one person arrives" has three pronunciations, shown in 8.

8. *jiya* (Southern)/ *jiwa* (Central)/*jivia* (North and Northwest)

SE: *jiya* for 10 speakers
(S82 has [jiwayE],a unique pronunciation)

SW: S50 *jiwa*
S74 *jivia*
S28 *jivia / jiya*
S66 *jiwa*
S67 *jivia*
S75 —

Among Southwestern speakers, every possible pronunciation can be observed. Southeastern speakers are focussed on a single form; the deviant pronunciation by S82 may have been intended to illustrate a non-local usage).

A third example of this type is the pronunciation of the word meaning "rattle". Here, three pronunciations are known, as shown in (9), and they have strong regional associations; we would expect the Southwest to exhibit the first pronunciation. Instead, all possible pronunciations of this word were produced by Southwesterners.

9. *ṣawĭkuḍ* "rattle" (Southern)/*ṣawkuḍ* (Central and North)/*ṣaikuḍ* (Northwest)

SE: *ṣawĭkuḍ* only

SW: S50, S74, S28 *ṣawkuḍ*
S66 *ṣawĭkuḍ*
S67 *ṣaikuḍ*
S75 —

C. Southeastern speakers are more consistent and "focussed" in their usage. As can be seen from examining the data above, most cases of deviation from their central tendencies were produced by a single individual, S48, a man who has lived outside the dialect area in a central-dialect village for 50 years. For the Southwest, every one of the six speakers was an outlier on one or more variables.

D. Southeastern speakers are less likely to change their speech when they move. Here, our best evidence is from a study of three Southeastern women (S23, S69, S43) who are married to, and living with, men from

villages in other areas (Hill and Zepeda 1991). They contrast both with the one woman (S74) who had married out of the Southwestern area,[7] and also with five women of Central dialect origin who live in peripheral areas. Southeastern women did not accomodate their speech to that of their husband's communities, in spite of very long residence there. Indeed, in one notable case, the husband seemed to be accomodating to his wife's speech, in spite of the fact that they had lived for 30 years in his family's summer village in a central-dialect area. In contrast, Central-dialect women did accomodate. In several cases, women volunteered that they either had, or had not, chosen to accomodate, so this issue is a salient one. There is not time to repeat the details of this study here, so I summarize the difference in a chart of the grossest measure, the number of variables that are definitional for the natal dialect area on which women either changed or did not change in the direction of the dialect area of residence (as retrievable from interview data).

TABLE I.

AREA OF ORIGIN	NUMBER OF VARIABLES CHANGED	NUMBER OF VARIABLES UNCHANGED
SOUTHEAST		
S23	7	29
S69	8	16
S43	2	38
CENTRAL		
S42	24	19
S82	20	9
S85	16	13
S73	32	7
S70	17	13
SOUTHWEST		
S74	16	6

In addition to this gross pattern of modifying fewer variables, Southeastern women exhibited the least accomodation, in quantitative

terms, on the variables on which they did change their speech: that is, while they might occasionally use a community-of-residence pronunciation, they did this at a much lower frequency than did women from other dialect areas. Interestingly, the two women who moved into Southeastern communities from outside the region, S82 and S85, exhibit very extreme hyperaccomodation, shifting their usage, in quantitative terms, even past the usual norms for native Southeast usage.

I proposed above that localist vs. distributed sociolinguistic stances would associate with construals about rights and access to resources. Probably the most obvious difference between these two dialect communities is differential access to surface water. The villages in the Southeast are strung along the western flanks of the Baboquivari Range, which includes Baboquivari Peak (7730') the highest mountain on the Tohono O'odham reservation. There is a general east-to-west gradient of average annual rainfall in the Sonoran Desert regions of Arizona. The Baboquivari Range is at the western edge of a zone where annual rainfall averages 15 inches. In contrast, the Southwestern villages lie between the Mesquite Mountains on the east, with the highest elevations barely above 3,00 feet, and the Ajo Mountains, on the west (indicated along the southwestern boundary of the reservation on Map 5), with the highest peak just over 4,000 feet. This region falls in a zone marked on climate maps for 0-5 inches of annual rainfall. However, the difference is even greater than the rainfall maps of the Sonoran Desert suggest: Baboquivari is a rain catcher in both winter and summer, with annual rainfall over the range itself probably averaging closer to 20 than to 15 inches, and in good years reaching as much as 30 inches. Even in a year of extreme drought the area is unlikely to receive less than about 10 inches of rain. In contrast, years with no rainfall at all are fairly common in the Southwest. The biogeographic contrast between the two regions is stark. As the Sonoran Desert goes, the foothills of Baboquivari are a virtual earthly paradise, with oak woodlands dipping low in the canyons, many permanent springs, and lush grassland on the *bajadas*, the alluvial outflow plains, providing superb forage for cattle, the principal measure of wealth for the contemporary Tohono O'odham. The broad washes

west of the range run with great reliability; the main channel of the Vamori Wash (which I know because a main road goes along it and crosses it several times) is marked by dense thickets of mesquite and reeds, and the beds of sands and silt along its course spread over a wide area and are damp during a large part of the year. People from the Southeast are widely regarded by other Tohono O'odham as "rich".

The Southwest has quite a different aspect. The best water sources in the low hills are not springs, but semi-permanent rock tanks where rain water lasts through the dry season only in good years. The flanks of these hills provide no forage except in extremely wet years, and the sandy beds of the washes cross creosote desert with only scattered mesquite and palo verde. During the 1930's the confluence of the Sweetwater, Ali Jek, and Pi Oikk washes was dammed to form a stock pond, grandly dubbed "Menager's Lake" (in the southwest corner of Map 5), that is usually little more than a mud-puddle. Deep wells in the area were provided between 1934 (at Sweetwater) and 1938 (at Ali Jek (Menager's Dam)). The people of this area are not thought of as wealthy; indeed, they are often teased about being "Sand Papago", a point discussed in more detail below.

Both communities of speakers are thought to be relatively recent migrants from Mexico into their respective regions; if this is true, the contrast between the two groups is all the more remarkable. The Southeastern regions of today's Baboquivari and Chukut Kuk Districts (the districts are the units of tribal government and correspond to grazing districts) are mixed areas in which both Central-dialect Totoguañ speakers and Kokolo:di speakers both live. The Kokolo:di speakers, the population under consideration here, are said to have entered the area from Mexico after the pacification of the Apaches in the 1870's, displacing the central-dialect Totoguañ from the most desirable sites; one Kokolo:di man opined, in a way that is rather unusual for the egalitarian O'odham, that Kokolo:di people are simply technically more advanced than the Totoguañ (he is a good migration theorist). I am agnostic about this theory, since, as I pointed out above, the pronunciation of the old loan-word "Baboquivari", the name for the most important mountain in the Southeast, entered Spanish in the 18th Century and reflects Kokolo:di, not Totoguañ, phonetics.

People currently living in the Southwest are believed by other O'odham, and by ethnohistorians, to be recent immigrants from Mexico. They are often referred to as "Sand Papago", a mildly insulting epithet implying that they originated among the foragers of the extreme western deserts, who are said to have subsisted primarily on *hia tatk* "Sand Root" (Ammobroma sonorae), an edible plant that grows only on dunes. While a few families in the area may be descendants of genuine "Sand Papago," this designation seems to be most frequently used by the O'odham simply to mean something like "rustics who come from west of my own area of origin". Autobiographical data from these speakers (and information collected from their parents' generation in the early 1960's (Jones 1974), suggests that most of these families have probably been at least occasional seasonal cultivators for over 100 years, and probably took refuge at the spring-fed oases at Wa:kk (Quitovac, Sonora) and A'al Waippia (Quitobaquito Springs, now in Organ Pipe National Monument) for drinking water in the worst dry seasons. However, permanent populations at the oases were necessarily small, and the community at the A'al Waippia oasis was removed in 1957 (cf. Nabhan 1982).[8]

Life-history information collected from speakers in the two areas reveals that families in the Southwest moved with much greater frequency, and among a wider range of sites, than those in the Southeast. Only one of the six Southwestern speakers, S74 (born in 1926 at Ajo, although she counts her natal village as Pi Oikk), reports a regular two-village migration pattern during her childhood. The rest report living at as many as half a dozen different village sites, some of them in Kokolo:di territory east of the Mesquite Mountains, moving when water ran out, and occasionally seeking refuge with relatives at the Quitovac oasis in Mexico, or in employment in the cotton fields north of the reservation around Casa Grande. Four of these six speakers report that at least one parent came from the Mexican side of the border. These biographies contrast with those offered by speakers from the Southeast, where four of the 11 speakers report living as children in regular two-village migration patterns between a single winter village in the Baboquivari Range and a single summer village on the Vamori Wash

system. The other seven report stable residence in a single location as children. Two of these speakers also have Mexican relatives, at the important village of Ce:dağ Wahia (Pozo Verde) just south of the border.

While I am, of course, unable to reconstruct the social networks of these people's natal families, the residential patterns they report imply that there must have been important differences between the two areas. Speakers whose families were involved in stable 2-village migrations, or even permanent residence in one of the summer villages with reliable surface water along the big washes west of the Baboquivari range, would have probably had many stable strong ties to coresidents. Speakers in the Southwest, lacking residential stability, would have found it difficult to maintain strong ties outside the nuclear family, and would have required weak ties in a variety of potential residence sites in order to obtain permission to settle, albeit briefly.

It is interesting to speculate about the social environment of the primary socialization of these consultants. Wick Miller (1970) once pointed out that children among the Western Shoshone probably lacked stable peer groups of age mates, since local groups were so small. It is likely that this was also the case among the Southwestern Tohono O'odham. Group size would have been sharply constrained by available water, and repeated moves would have frequently reshuffled any small groups of age mates that might form. Variationists argue that sociolinguistic focussing takes place mainly in such childhood peer groups, and this kind of social unit probably was not a major factor in their language socialization. In contrast, the relatively large villages and greater stability of residence in the Southeast would permit juvenile peer groups to play an important role in language socialization.

III. SOME EXTENSIONS OF THE MODEL

Let me now return to my original point: what does an anthropological dialectology have to contribute to our understanding of the alternations of residual zones and spread zones on our maps of language variation? The case shown above is especially interesting if it is

indeed true, as is claimed by the people themselves and by ethnohistorians, that the two groups are both rather recent arrivals in their areas. In fact, most features of the Tohono O'odham dialect system are unlikely to date from before 1870, because of the extreme disturbances of residence that this group experienced during the nearly 200 years that they were under siege by the Apaches. Thus, these striking contrasts are the result of a rather brief history, suggesting that these sociolinguistic stances can develop very quickly in speech communities. Note that in neither case have the contrasts developed because actual human beings are "migrating". While Southwesterners frequently lived outside of their home area, all of them claim to be "from" there, and have chosen to live there when they can. Southeasterners also have been a relatively stable population since the end of the 19th century. Furthermore, the two groups used identical technologies of subsistence, although Southwesterns report many years when they were unable to plant crops. The question is not, have these groups moved? It is, have linguistic innovations moved into these groups? In the case of the Southwest, the answer is, largely, "Yes". In the case of the Southeast, it is, largely, "No." That is, behavior of people in the Southeast models, on a very small scale, the formation of a residual zone, while the behavior of people in the Southwest models, again on a small scale, the formation of a spread zone.

Let us now return to Map 2, of the Numic languages. The traditional explanation for this pattern is that of "expansion" or "spread" of Numic-speaking peoples (e.g. Steward 1940, Lamb 1958, Bettinger and Baumhoff 1982), who are said to have replaced a sparse population of pre- Numic peoples in the Great Basin about a thousand years ago. The complex of small languages in the southwest corner of the Numic distribution is said to be the point of origin of this spread, showing the most diversity simply because it is where Numic speakers have lived for the longest time. This model requires that prehistorians postulate some specific reason for Numic speakers to migrate, and some reason why they were able to replace their predecessor in the Basin. Sutton and Rhode (1994) mention a variety of proposals. All of them require some technological innovation that gave the Numic migrants an advan-

tage over their predecessors in the Basin, and all of them run into difficulties with the archaeological data. An explanation that can account for the residual zone- spread zone contrast in the distribution of the Numic peoples without postulating a migration is clearly needed.

The distinction between localist and distributed sociolinguistic stances proposed here can provide such an explanation, permitting a model of "differentiation *in situ*", perhaps including the linguistic "Numicization" of a population in the Basin.[9] The ecological facts fit: It is easy to imagine that people living in the Great Basin felt "poor" compared to people living in the well-watered eastern foothills of the Sierra Nevada (at least they were well-watered before the rise of the city of Los Angeles). We know that people in the Great Basin moved frequently, and we know that they lived in relatively small groups. We know that a principal resource, pinyon nuts, was relatively unreliable; a grove might yield well in one year, and hardly at all in the next. Access to drinkable water is also a problem throughout the Great Basin. Thus we do not require any special innovations: we need postulate only that the Great Basin is a linguistic "spread zone" because human adaptation there lent itself to a distributed stance. Thus specific sociolinguistic variables, or even the Numic languages themselves, could spread quite rapidly over large areas, creating the fan-like pattern that has tempted so many generations of migration theorists. The "culture of language" fits: we know from the work of Miller (1970) that the Shoshone, a Central Numic group, attended little to dialect differentiation, claimed not to be able to tell where people came from based on their speech, and had a highly flexible attitude toward innovation. Within such a culture, innovations could spread with great rapidity, overriding the centrifugal forces that create linguistic divergences when people are separated at great distance. Note that we do not need to postulate (as I have in the past (Hill 1979), and as has been suggested by Shaul (1986)), any particular patterns of marriage, visiting, or whatever. All that is needed is a distributed stance toward sociolinguistic variation. We also do not need to postulate any particular cultural innovations or environmental catastrophes, although it seems likely that the zones where distributed stances were in dominance

must have spread as the Basin became increasingly dry. In contrast, the Sierra foothills remained a part of the larger California "residual zone", an area where people perceived themselves to have primary rights to desirable resources, and developed localist sociolinguistic stances accordingly.

Now let us look again at Map 1, of Mixe-Zoquean languages vs. Otomanguean and Mayan languages. Some of the linguists most expert in matters Mesoamerican think it likely that the very earliest complex societies based on maize agriculture developed among Mixe-Zoquean speaking peoples; part of the evidence is the widespread use of Mixe-Zoquean loanwords for components of the agricultural complex in other Mesoamerican languages (Campbell and Kaufman 1976) and the great antiquity of Mixe-Zoque writing (Justeson and Kaufman 1993). For the Old World, of course, Renfrew (1987) proposes that the innovation of agriculture in the Near East began a process by which agriculturalists (not "agriculture") expanded at the expense of foragers (not "foraging"). He believes, of course, that these agriculturalists were speakers of Indo-European languages (a claim with which I cannot agree, but this is an issue beyond the scope of this paper). The point is that there is no linguistic evidence that anything of the kind happened in the Americas. In fact, what we see as we look at the map of the linguistic distribution of the Mesoamerican language families is that Mixe-Zoquean languages are very limited in their geographical spread compared to the other major language families in the region. The model of residual vs. spread zones developed here suggests that Mixe-Zoqueans very early developed localist strategies, quite possibly in connection with a very early adoption of agriculture, and continue to use them. The much larger geographical spread of the Otomanguean and Mayan languages suggests that these language groups might have formed in spread zones where distributed strategies associated with a sense of relative resource impoverishment were in dominance; sociolinguistic innovations spread rapidly across these communities from an inner core of groups in close contact with Mixe-Zoqueans, quite possibly in their impressive "Olmec" manifestation. As the new technologies of cultivation permitted a sense of trust in the reliability of

local resources, new "residual zones" could form, yielding the contemporary linguistic complexity of the Otomanguean and Mayan stocks, with many small local languages and intense consciousness of dialect differences. The chain of Southern Uto-Aztecan dialects, spoken among foragers at the northern edge of Mesoamerica, provided a new spread zone as the leading edge of maize agriculture reached their southern boundary.[10]

Thus far, I have discussed only "non-Western" cases. However, the model does not work only for neolithic conditions. Many distributions of variation in social space in contemporary societies might lend themselves to accounts in the terms I propose. I have already mentioned the case of African-American vernaculars contrasted to white-ethnic dialects of American English; there is no question that African American communities are relatively deprived in terms of their primary claims on resources, and innovations spread very rapidly across North America in these populations, creating a striking dialect homogeneity that encompasses the entire United States. There is time for only two additional brief examples. The first is the problem of female innovation. Working-class and lower-middle-class female speakers of European languages are notoriously receptive to innovation, in contrast to men. There have been many explanations of this phenomenon; I find most interesting the recent proposal by Penelope Eckert (1993), that this is because these women control little material capital, so seek to control cultural capital, including prestigious sociolinguistic variants. Within my model, the claim would be a little different: That women do not feel that they have primary rights to reliable resources, so they practice the distributed strategy, in contrast to men, secure in their primary rights, who are more localist. My model predicts that working-class women will be just as receptive to stigmatized as to prestigious variants; Eckert's predicts that they will favor prestige variants. There is almost certainly enough data to test these predictions.[11] A second phenomenon that might be modelled in my terms is language shift. The model can describe language shift as a change from dominant localism vis-a-vis a new language, yielding either rejection or very limited use of it, to a distributed stance that yields acceptance

of a new language across many domains. It suggests that this shift in sociolinguistic stance will be driven by new cultural construals of environmental rights and values, far more than by relative population size, relative intimacy of contact, or the panoptical power of speakers of the new language (as in boarding schools for Native Americans, which did not in fact stamp out indigenous languages in spite of the fact that this was one of their explicit goals). One of the phenomena that this understanding accounts for is the extreme power of television, which Michael Krauss once observed works like "cultural nerve gas", to drive rapid language shift. Television advertising is precisely designed to accomplish the necessary shift in evaluation of resources that will take a community from a localist to a distributed strategy: It makes you think that what you have is not good enough, and it provides images of people who have what you want, who are so much more perfect than you will ever be that your claims to what they have can never be primary.

IV. CONCLUSIONS: ANTHROPOLOGICAL DIALECTOLOGY AND TRADITIONAL DIALECTOLOGY

This very general anthropological model of the distribution of language variation in space is distinct from linguistic dialectological models, a term I use to include recent studies of language variation using quantitative methods, as developed by scholars like Labov (1966, 1972a, 1972b) and Trudgill (1983), although it does build on these methods. First, it is intended to generalize across all the different kinds of human societies that we can observe throughout history. This contrasts with models proposed by Trudgill (1983) that depend on differential population density, where innovation will diffuse from areas of high density to areas of low density. Trudgill's model is proposed as an account of the common phenomenon of the diffusion of urban forms into rural areas. But Neolithic human adaptations did not include cities, and it is unclear that Trudgill's demographic model will hold up in every case of residual zone/spread zone differentiation. It

will usually be the case that spread zones have lower population density than residual zones, but my model does not require this. Second, Trudgill proposes that distance is crucial; innovation spreads faster over short distances than over long ones. This variable breaks down when we notice the difference between small residual zones, where innovations move slowly if at all, and large spread zones, where they advance rapidly over long distances. The model of localist vs. distributed strategies does not require either a demographic or a distance component. A third dimension that has been important for contemporary students of language variation is Labov's (1972a) distinction of "change from below", innovations that emerge in lower-status social zones, and "change from above", innovations that begin in high-status sectors. The present model is has nothing to say about differential prestige or rank. It requires only that a variant be associated with a primary or secondary claim on resources. If variants of the "change from below" type, which are highly regular and seem to manifest the basic "drift" of a language, will develop and spread even without this licensing function, however, this would be of great interest.

My notion of "localist" vs. "distributed" stances toward variation obviously owes much to the idea of "focussed" vs. "diffuse" linguistic communities proposed by Robert LePage (LePage and Tabouret-Keller 1985). However, the model is distinct from theirs, in that "localist" and "distributed" stances are taken up not necessarily by communities, but by individuals (although they may be quite general in communities), and can be taken up differentially towards different variables. Furthermore, the stances are associated with specific ecological and cultural contexts. My incorporation of the biology of language also distinguishes my position from LePage and Tabouret- Keller's argument that every choice among sociolinguistic variables is an "act of identity". I agree with their basic point, but I argue that such "acts of identity" directed outside the primary community are likely to be less easily accomplished than are those that perpetuate the usage of the primary family and peer group. They will thus be vulnerable to the perfectionist ideologies of localists, and will usually constitute merely partial and secondary claims on resources. Finally, my position differs

from the "accomodation theory" of Giles (1973), in generalizing beyond microinteraction to broad stances toward variation that are constrained by the total contexts in which speakers live. In summary, the dialectological model proposed here differs from previous proposals in that it is genuinely anthropological: it requires attention to the two basic stances, to human ecology, to human biology, to the culture of language, and to social organization. By encompassing all of these dimensions of human adaptation, we may be able to generalize dialectology and add it to the inventory of models that anthropologists use to account for the nature of human diversity.[12]

ENDNOTES

1. I use the term "dialect" here in its technical sense, meaning 'regional varieties' of a language. Upper Piman probably constitutes a single language; today's speakers find one another mutually intelligible across the entire area.

2. This research was supported by the National Science Foundation (NSF BNS 8608009) and by the Social and Behavioral Sciences Research Institute of the University of Arizona.

3. The main distinction that Joseph, Spicer, and Chesky (1949) and Saxton, Saxton, and Enos (1983) make that we do not is the recognition of a "Hu:hu'ula" dialect in the Northwest. We have only two speakers from this area in our sample. However, based on their speech, we rank Hu:hu'ula as a subdialect; it is no more different from the speech of the neighboring Gigimai (to the south) and Kohadk (to the east) dialects than is, for instance, the speech of people in Pisinmo'o different from the rest of the Southern or Kokolo:di dialect, or the speech of the people of Iron Stand and Big Fields different from the speech of other speakers of the Central or Totoguañ dialect. Also distinctive from the earlier work is our recognition of a relatively conservative "Periphery" (which probably includes so-called Pima, a point which requires additional fieldwork for confirmation), distinguished from the innovating "Central" or Totoguañ dialect.

4. Workman and Niswander (1970) found considerable population-genetic differentiation among the administrative districts of the Tohono O'odham

reservation, which largely overlap dialect areas. They found this to be consistent with a high level of endogamy within each district.

5. "S" or "Subject" numbers are the identification numbers assigned to each respondent in the survey, and identify individual speakers.

6. Contemporary phonologists recognize the "tongue-root" features, advancement and retraction, as a component in the set of "minor features" available as potentially distinctive in the vowel systems of human languages (cf. Ladefoged and Maddieson 1996). Hill, Zepeda, Belin, and Dufort 1996 argues for the recognition of a tongue-root distinction in Tohono O'odham.

7. In an interesting attestation of the localist stance, after we interviewed S74 other inhabitants of the community (in the northwest) where she had lived since the 1950's informed us that she was not an appropriate speaker to represent their community. We reassured them by explaining that speakers were coded in the study according to their community of origin, not their community of residence. An examination of Table I shows that S74 had made considerable efforts to accomodate her speech to the distinctive pattern of the village where she lived.

8. Most ethnographers and ethnohistorians believe that the genuine "Sand Papago", dwellers in the Pinacate Desert, never numbered more than 150 and died out over a century ago. However, Mexican Papago from Quitovac and neighboring villages were also known as "Areneños." Whatever the source of the current population of the Southwestern region, they seem to have gone through a genetic bottleneck. Workman and Niswander (1970) found that subjects from District 4 (Ge Wo'o, which includes not only the Southwest but also speakers of the Gigimai or Western dialect) showed a striking departure from populations in other districts in frequency of the Diego blood antigen, at 11.5%. No other group had a frequency of Diego above 3.2%.

9. I don't intend this discussion to imply that I rule out an explanation of the Numic language distribution that invokes migration. We know that the Numic peoples could and did migrate; the Comanche, speakers of a Central Numic language who assimilated to the Plains pattern of horse nomadism, were found east almost to the Gulf of Mexico and south as far as Monterrey in the 19th century . What I want to point out, since Numic

Expansionists have often behaved as if there were no reasonable alternative to their proposals, is that the present model fits the facts also. One problem that needs attention is the patterning of innovation. As far as I know, no discussion of the dialectology of the Numic has attempted to untangle which variables in the isogloss system are conservative and which are innovative, an extremely important question for testing whether the present model is preferable to a migration model.

10. While Mesoamerica is linguistically very diverse (there are four languages generally considered isolates, and five major language families represented, with Otomanguean having many subfamilies), Nichols (1992) considers it a spread zone; linguistic innovations definitely cross languages and even families in this region, constituting it as a "linguistic area" (Campbell, Kaufman, and Smith-Stark 1986). The explanation presented here adds detail to this picture; the areal innovations must have spread at a time before the currently dominant "localist" strategies evolved.

11. Working class men have been said to exhibit devotion to variants that exhibit "covert prestige", that is, they are valued in working-class communities, even though people do not articulate this value and may even deny it. My model does not require prestige, either covert or overt—it simply requires that use of a particular set of ways of speaking license access to resources.

12. In the discussion of the paper, Richard Bauman and Charles Briggs inquired whether I thought that the model would encompass all dimensions of linguistic variation including, for instance, repertoires of genres. I am not sure whether this is the case, and extend my claims here only to the classic dialectological foci of lexical and phonological variation.

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